Evaluation of the HEDIS Measure of Behavioral Health Care Quality

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Objective: **The Health Plan Employer Data and Information Set (HEDIS) is the most widely used "report card" system comparing health care plans across different dimensions of performance. HEDIS uses only one measure of the quality of behavioral health care—the rate of follow-up after hospitalization for major affective disorder. This study used data from a national Veterans Affairs database to evaluate the generalizability of the HEDIS behavioral health quality measure.** *Methods:* **Using administrative data from a nationwide sample of 114 VA hospitals, the HEDIS (version 2.5) quality measure was compared with several related performance measures including readmission rates and outpatient follow-up rates for other psychiatric disorders and for substance use disorders. The magnitude and statistical significance of Pearson's r value for correlation between measures was calculated.** *Results:* **The HEDIS measure was moderately correlated with 30-day follow-up after hospitalization for other psychiatric disorders and with other performance measures of outpatient care. However, it was poorly correlated with follow-up for substance use disorders, inpatient measures including readmission rates, and several other measures of quality.** *Conclusions:* **Caution is needed in drawing conclusions about the quality of behavioral health plans based on the single measure used in HEDIS, version 2.5. Inclusion of other performance measures may be warranted. (*Psychiatric Services* 48:71–75, 1997)**

The exponential growth of managed care in the last decade has brought with it an often confusing array of health plan choices for consumers. Increasingly, employers and administrators are turning to health care "report cards" to allow side-by-side comparisons of health plans on dimensions such as cost, access to care, consumer satisfaction, and quality. Scores on these report cards determine the range of plans that employers offer employees and are expected to influence employee choice among the available plans. These rating systems will likely exert increasing influence in the coming years (1–3).

By far the most influential of these report card systems is the Health Plan Employer Data and Information Set (HEDIS) (4,5). This system, which grew out of a 1988 quality improvement initiative conducted by a consortium of 17 health maintenance organizations, four large employers, and a consulting firm, has been under the auspices of the National Committee for Quality Assurance (NCQA) since 1992. HEDIS is now the dominant measure used by employers to choose among health plans (2,6). More than 330 health plans nationwide use HEDIS to gather data for employer-purchasers (7). HEDIS is also being adapted for use with Medicare (8) and Medicaid (9) and as a basis for state health care reform (10,11). HEDIS 3.0, the final version of which is due out in early 1997, is more expansive than previous versions and is designed to be applicable over a broad range of populations (7).

Given the growing influence of HEDIS, it has received surprisingly little attention in the peer-reviewed scientific literature. A MEDLINE search yielded only six articles with abstracts mentioning HEDIS (12–17). No study has yet explored its psychometric properties.

Even less consideration has been given to the mental health measures in HEDIS. Monitoring quality of care may be especially important for individuals with serious mental illness, because prepaid care may pose substantial risks of undertreatment to individuals with chronic conditions in general (18) and with severe mental illnesses in particular (19). Although use of HEDIS in behavioral health care settings has been discussed in industry journals (3,7), we are aware of no articles in the peer-reviewed scientific literature discussing this issue. Assessment of mental health services has been hampered by the lack of uniform data collection and the large number of behavioral health providers in managed care networks in the private sector (10,20).

HEDIS, version 2.5, assesses 60 measures across five domains of plan performance: quality, access and satisfaction, membership and utilization, finance, and health plan management. Quality measures for nonmental disorders include rate of immunization; screening for cholesterol and breast and cervical cancer; prenatal care; the rate of inpatient admis-

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sions for patients with asthma; and the percentage of patients with diabetes receiving retinal exams.

For mental disorders, the quality domain comprises one measure: the percentage of patients hospitalized for major affective disorders who have an ambulatory visit within 30 days of hospital discharge. The specified *ICD-9* codes 296.0–296.9 include both major depression and bipolar disorder. As a rationale for the choice of the mental health quality measure, the HEDIS manual cites the high prevalence of major affective disorders and the presumption that prompt follow-up after discharge will help prevent unnecessary rehospitalization.

Quality in health care is generally regarded as a multidimensional concept, involving aspects of the structure, process, and outcomes of care delivery (21,22). Quality may vary between diagnoses or may be better for one modality of care than another (such as outpatient compared with inpatient care). The use of an inadequate number of measures to describe a complex construct such as quality may seriously call such a measure's validity into question (23).

The study reported here used data from a national sample of Veterans Affairs hospitals, derived from nationally compiled databases, to assess some of the implications of using the HEDIS quality measure to assess quality of mental health care. We addressed three questions. First, does outpatient follow-up for affective disorders—the HEDIS quality measure—predict follow-up for other psychiatric and substance abuse disorders? That is, is the measure generalizable across diagnoses? Second, does the HEDIS quality measure predict other relevant outcomes, such as reduced rates of readmission? Finally, what preliminary conclusions can be drawn about the overall generalizability of the HEDIS measure?

Methods

Sample and data sources

The sample included 114 VA medical centers; these centers had at least 25 discharges from inpatient psychiatric units and 25 discharges from inpatient substance abuse units between October 1, 1994, and March 31, 1995. Hospitals rather than individuals were used as the sampling element in keeping with the method used by HEDIS. Administrative data for all 67,646 veterans discharged from these units were used to calculate means for each performance measure for each VA medical center.

The database was generated as part of a national performance monitoring system for VA psychiatric and substance abuse treatment (24,25). Data were derived from the VA's national inpatient discharge abstract file (the patient treatment file) and from an outpatient workload record (the outpatient file) documenting all VA outpatient service delivery.

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Variables

The HEDIS (version 2.5) quality measure for mental health is calculated as the percentage of patients hospitalized for treatment of a major affective disorder (*ICD-9* 296.0–296.9) who were seen for psychiatric or substance abuse care on an ambulatory basis within 30 days of hospital discharge (4). The mean value for this measure was calculated for each VA hospital in the sample.

The HEDIS quality measure was compared with outpatient follow-up after hospitalization for other psychiatric disorders, readmission rates, other inpatient measures, other outpatient measures, and a measure of access to medical services.

The rates of outpatient follow-up within 30 days for patients with other psychiatric and substance abuse diagnoses were compared with the HEDIS quality measure. The psychiatric diagnoses used for comparison were schizophrenia (*ICD-9* 295.00–295.99) and posttraumatic stress disorder (PTSD) (*ICD-9* 309.81). Substance use disorders used for comparison were alcohol-induced disorders (*ICD-9* 303 and 291.0–291.9) and drug-induced disorders (*ICD-9* 291–305).

The second comparison measure, readmission rates for each hospital, was calculated as the percentage of individuals with initial discharge during the target six-month period who were readmitted for the same type of treatment (psychiatric or substance abuse) within 14, 30, and 180 days. Psychiatric and substance-related admissions were calculated separately because of administrative restrictions on readmissions in some VA substance abuse programs.

The two other inpatient performance measures used for comparison were the number of days until readmission and the total number of days in the hospital during the first six months after the index discharge for veterans who were readmitted.

Other outpatient performance measures were the number of days from discharge until the first outpatient psychiatric or substance abuse visit, the percentage of discharges with a follow-up visit within six months, and continuity of care. The last was measured by the number of two-month periods during the six months after discharge during which the patient had at least two mental health or substance abuse outpatient visits.

The HEDIS quality measure was also compared with two measures of access to medical care: the percentage of patients with a secondary medical diagnosis discharged from psychiatric or substance abuse beds who received an outpatient medical or surgical follow-up within 30 days, and the average number of days until the first outpatient medical or surgical visit for patients with a secondary medical diagnosis discharged from psychiatric or substance abuse beds.

Statistical methods

Pearson's r correlation coefficients (possible values range from 0 to 1) and their statistical significance were calculated for comparisons between the HEDIS measure and each comparison measure using SAS 6.10. Standards based on the literature were used to classify the strength of association as no relationship (r=.00 to .09), a small effect (.10 to .29), a medium effect (.30 to .49), a large effect (.50 to .69), and a very large effect (>.7) (26).

Results

Characteristics of individuals

Table 1 lists mean values for demographic and clinical variables for the 67,646 veterans discharged from inpatient psychiatric and substance abuse beds during the study period. Almost all patients discharged from both types of unit were men. Most were Caucasian, and most were poor, with an average income of under $8,000 a year.

The majority of patients discharged from inpatient psychiatric units had one of three diagnoses: schizophrenia (26 percent), major affective disorder (21 percent), or PTSD (13 percent). Almost all individuals discharged from substance abuse units had diagnoses of either drug abuse or dependence (27 percent) or alcohol abuse or dependence (66 percent).

Performance measures and correlations with HEDIS

Table 2 lists mean performance measures for all hospitals in the sample. The mean rate of outpatient follow-up after hospitalization for major affective disorder—the HEDIS quality measure—was 50 percent. The range for the 114 VA medical centers was 13 to 79 percent. The mean rate is higher than the goal of 45 percent set by the U.S. Public Health Service (27), but lower than the average for health plans in the private sector (28).

Rates of 30-day outpatient follow-up for patients with other psychiatric and substance use diagnoses ranged from 39 percent for alcohol abuse to 60 percent for PTSD. Mean 30-day readmission rates for psychiatric and substance use disorders were 13 percent and 5 percent, respectively.

Table 1

Demographic and clinical characteristics of all veterans discharged from VA inpatient psychiatric units and substance abuse units between October 1, 1994, and March 31, 1995

Variable	Psychiatric units (N=40,574)		Substance abuse units (N=27,072)	
	Mean	SD	Mean	SD
Age (years)	47.4	1.0	44.0	1.0
Male (%)	95.3	1.0	98.2	0.5
Race (%)				
Black	25.0	13.9	34.7	17.0
Hispanic	5.0	6.9	3.7	4.4
Marital status (%)				
Married	27.4	5.2	20.2	2.5
Divorced or separated	43.7	3.0	55.8	3.6
Annual income	$7,829	$1,178	$7,404	$768
Diagnosis (%)				
Schizophrenia	26.3	4.4	0.5	0.3
Major affective disorders	21.0	4.6	0.6	0.3
Posttraumatic stress disorder	13.1	5.1	0.7	1.3
Drug abuse or dependence	5.5	2.3	27.3	10.0
Alcohol abuse or dependence	11.5	4.3	66.1	9.1
Number of medical diagnoses	1.1	0.1	0.95	1.0

Two measures of access to medical care were also examined. The rate of medical follow-up within 30 days for patients with a secondary medical diagnosis discharged from psychiatric or substance abuse beds was 44±.08 percent. The mean±SD number of days until the first medical visit was 41.1±5.91.

Table 3 shows the correlations between the HEDIS quality measure and the follow-up and readmission measures. The size of the correlation between the HEDIS measure and

Table 2

Mean±SD values for performance measures of quality of care for veterans discharged from VA inpatient psychiatric units and substance abuse units between October 1, 1994, and March 31, 1995

Performance measure	Psychiatric units		Substance abuse units	
	Mean	SD	Mean	SD
Outpatient follow-up within 30 days (%)				
Major affective disorder[1]	.50	.13		
Schizophrenia	.52	.13		
Posttraumatic stress disorder	.60	.17		
Alcohol abuse or dependence			.39	.15
Drug abuse or dependence			.40	.18
Readmission (%)				
Within 14 days	.08	.03	.03	.03
Within 30 days	.13	.03	.05	.05
Within 180 days	.35	.06	.15	.10
Other inpatient measures				
N days until readmission	63.98	7.37	71.30	22.60
N days rehospitalized	11.67	4.65	3.41	11.50
Other outpatient measures				
Continuity of care[2]	1.22	.26	1.01	.30
N days after discharge until first visit	36.10	7.67	28.16	10.85
N outpatient follow-up visits within first six months	.75	.06	.51	.14

[1] The HEDIS measure

[2] Measured as the number of two-month periods during the six months after discharge during which the patient had at least two mental health or substance abuse outpatient visits

Table 3

Correlations between the HEDIS measure and other performance measures

Performance measure	Psychiatric units		Substance abuse units	
	r	Effect size[1]	r	Effect size[1]
Outpatient follow-up within 30 days				
Schizophrenia	.65***	Large		
Posttraumatic stress disorder	.48***	Medium		
Alcohol abuse or dependence			.03	None
Drug abuse or dependence			–.04	None
Readmission				
Within 14 days	.24**	Small	.12	Small
Within 30 days	.24*	Small	.08	Small
Within 180 days	.17	Small	.15	Small
Other inpatient measures				
N days until readmission	–.18	Small	.09	None
N days rehospitalized	–.03	None	.19	None
Other outpatient measures				
Continuity of care[2]	.58***	Large	.25**	Small
N days after discharge until first visit	–.74***	Large	.09	None
N outpatient follow-up visits within first six months	.49***	Medium	. 12	Small

[1] None, no relationship (r=.00 to .09); small effect, r=.10 to .29; medium effect, r=.30 to .49; large effect, r=.50 to .69; and very large effect, r>.7.

[2] Measured as the number of two-month periods during the six months after discharge during which the patient had at least two mental health or substance abuse outpatient visits

follow-up for schizophrenia was large, and the correlation between the HEDIS measure and follow-up for PTSD was medium

The correlation between the HEDIS measure and the rate of medical follow-up within 30 days for patients with a secondary medical diagnosis discharged from psychiatric or substance abuse beds was .22 ($p<.05$), which was considered to be a small effect. The correlation between the HEDIS measure and the number of days until the first outpatient medical visit for these patients was –.22 ($p<.01$), which was categorized as a small effect.

Contrary to expectations, high rates of follow-up for patients with psychiatric disorders were significantly and positively associated with higher rates of readmission at 14 days and 30 days. No association was found between the HEDIS measure and readmission for substance use disorders at any of the three time intervals.

The HEDIS quality measure was significantly associated with use of outpatient psychiatric services. It was not significantly associated with other measures of inpatient psychiatric care or with three of four substance use measures.

In summary, the HEDIS measure was moderately to strongly associated with follow-up for other psychiatric disorders. A small but significant positive association was found with readmission at two of three time intervals after discharge. The HEDIS measure was also associated with outpatient indicators of medical and psychiatric follow-up but not with inpatient indicators. Nine of ten measures of follow-up and readmission for substance use disorders were not significantly associated with the HEDIS quality measure.

Discussion and conclusions

The results of this preliminary study indicate some strengths and a number of limitations in using HEDIS 2.5 to assess the overall quality of mental health plans for patients with psychiatric and substance use disorders.

The HEDIS quality measure—the rate of outpatient follow-up for affective disorders—was moderately correlated with measures of outpatient follow-up for other psychiatric disorders but was a poor predictor of such measures for substance use disorders. In the VA system, substantial overlap exists between programs treating patients with psychiatric disorders, which likely accounts for the fact that the HEDIS measure predicted outpatient follow-up for veterans with PTSD and schizophrenia.

In contrast, substance abuse treatment in the VA system, as in the majority of private- and public-sector facilities, is provided by a distinct staff in separate program settings. The lack of correlation between the HEDIS measure and the substance abuse treatment measures supports monitoring the quality of mental health and substance abuse services separately and points to the difficulty of generalizing from mental health data to substance abuse data in the area of quality.

As noted, the HEDIS manual cites the expectation that prompt follow-up will be associated with a decreased likelihood of readmission (4). Contrary to that assumption, higher ratings on the HEDIS quality measure predicted higher, rather than lower, readmission rates. Thus findings for the veteran population appear to contradict a major reason for selecting the HEDIS mental health quality measure.

The VA health care system has some strengths and some limitations as a setting for the evaluation of the HEDIS mental health quality measure. HEDIS was initially designed for enrollees covered under employer-based managed care. In contrast to those populations, the VA system serves a population that is predominantly male, poor, and unemployed, as well as a large number of individuals with chronic physical and mental illnesses and homelessness (24). However, HEDIS is increasingly being used to assess the quality of health care for poor and disabled populations, making the VA system an appropriate setting to evaluate its performance.

Furthermore, the VA system is a national, integrated system of care that is far more homogeneous than the diverse private and state health care systems. This relative homogeneity should if anything lead to stronger associations among performance measures than in other systems. Limits of

generalizability found in the VA health care system would likely be accentuated in the private sector.

The National Center for Quality Assurance has acknowledged the shortcomings of the current behavioral health measures, and the HEDIS measures are in the process of revision (7). A preliminary draft of HEDIS 3.0 was released in July 1996, and a final version will be released in early 1997. In the draft version the quality section is retitled the "effectiveness of care" domain. The HEDIS 2.5 quality measure is replaced with another single measure—outpatient follow-up within 30 days after hospitalization for any mental illness. However, the problem of extrapolating a single measure to a global notion of quality (or effectiveness) of a health care plan still remains, and may be even further exacerbated when information is pooled across diagnoses.

In addition to the single quality or effectiveness measure that HEDIS 3.0 requires, several "testing set" measures are included. Health care plans will not be required to report data for these measures, which will be evaluated and modified over the next 12 to 24 months for possible eventual inclusion in the HEDIS reporting set. The proposed testing set measures for mental health include continuity of care for patients with substance use disorders, availability of medication management and psychotherapy for individuals with schizophrenia, failure of treatment for substance use disorders, chemical dependency screening, appropriate use of psychotherapeutic medications, rate of continuation of treatment of depression, family visits for children undergoing mental health treatment, and patient satisfaction with mental health treatment. Adding these measures would provide a multidimensionality and breadth of mental health quality measurement not available in the current version of HEDIS, although their addition would add a good deal of time and cost to health plans' data collection process.

The measures against which the HEDIS measure is compared in this study are not meant to represent "gold standards." Indeed, no consensus exists on the appropriate measures to capture a concept as elusive as the quality of mental health care. Rather, the findings provide a caveat against generalizing limited measures to global statements about the quality of a health plan. Future studies are needed to develop performance measures that are generalizable, economical to implement, and anchored in outcomes relevant to health care purchasers, clinicians, and consumers. ♦

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